

## OCEAN GALES AND STORMS, JANUARY 1937

Vessel	Voyage		Position at time of lowest barometer		Gale began January	Time of lowest barometer, January	Gale ended January	Lowest barometer	Direction of wind when gale began	Direction and force of wind at time of lowest barometer	Direction of wind when gale ended	Direction and highest force of wind	Shifts of wind near time of lowest barometer
	From—	To—	Latitude	Longitude									
NORTH ATLANTIC OCEAN													
Allan Jackson, Am. S. S.	Bucksport	Aransas Pass	35 50 N.	72 00 W.	3	11p, 3	4	29.93	SSW	SSW, 9	SSW	SSW, 9	SSW-W.
Boston City, Br. S. S.	Halifax	Cardiff	45 03 N.	58 34 W.	3	8a, 4	4	29.62	E	S, 7	SSW	ESE, 9	ESE-SW.
Tennessee, Dan. S. S.	Bamble	Newport News	58 37 N.	17 00 W.	6	11a, 6	7	29.30	WNW	W, 7	WNW	WNW, 10	W-WNW.
Black Hawk, Am. S. S.	Rotterdam	New York	48 29 N.	36 05 W.	7	5a, 7	8	29.17	S	SW, 7	WNW	NNW, 9	S-W.
American Banker, Am. S. S.	London	do	48 28 N.	39 10 W.	8	Mdt, 8	9	29.12	SW	WNW, 8	WNW	S, 9	S-NW.
Sundance, Am. S. S.	Savannah	London	46 47 N.	33 36 W.	6	4a, 9	9	29.35	WNW	SSW, 10	W	SSW, 10	SSW-W.
Pukkastan, Br. S. S.	Buenos Aires	New York	19 40 N.	59 30 W.	9	6a, 9	10	30.16	NE	NE, 8	E	NE, 8	NE-E.
Boston City, Br. S. S.	Halifax	Cardiff	49 37 N.	33 03 W.	7	7a, 9	10	28.98	NW	S, 11	W	S, 11	S-W.
Tennessee, Dan. S. S.	Bamble	Newport News	57 01 N.	27 34 W.	9	1p, 9	9	28.83	SW	S, 10	WNW	S, 12	SW-S-W.
Emile Francqui, Belg. S. S.	New York	Antwerp	47 30 N.	33 00 W.	10	3p, 10	10	28.79	SW	SW	W	SW, 10	SW-W.
Tennessee, Dan. S. S.	Bamble	Newport News	56 07 N.	31 00 W.	10	11p, 10	11	28.49	SE	NE, 11	WNW	N, 12	SE-N.
Alexandre Andre, Belg. M. S.	Manchester	Baton Rouge	43 03 N.	24 19 W.	11	2a, 11	12	29.56	SW	SW, 9	W	SW, 11	SW-W.
Sundance, Am. S. S.	Savannah	London	48 58 N.	22 05 W.	10	3a, 11	11	29.08	SW	S, 10	WSW	S, 10	S-W.
Blankaholm, Swed. M. S.	Kotka	New York	55 52 N.	31 51 W.	7	4a, 11	15	28.22	SE	NW, 9	SW	NW, 12	S-WNW.
Independence Hall, Am. S. S.	Chester	Havre	49 08 N.	23 02 W.	10	6a, 11	10	29.02	S	WSW, 7	WSW	SSW, 10	SSW-WSW.
Boston City, Br. S. S.	Halifax	Cardiff	52 10 N.	21 58 W.	10	10a, 11	11	28.93	S	WSW, 7	WSW	SSW, 12	SSW-WSW.
Caledonia, Br. S. S.	Glasgow	Boston	50 28 N.	38 58 W.	13	11p, 13	14	29.44	SW	WSW, 7	WNW	W, 10	SW-W.
Matina, Br. S. S.	Port Antonio	Liverpool	46 01 N.	34 50 W.	13	2p, 14	14	29.83	SW	NW, 11	WNW	NW, 11	SW-NW.
Black Gull, Am. S. S.	Antwerp	New York	49 40 N.	22 33 W.	13	8p, 14	14	29.36	SW	WSW, 7	W	SW, 9	WSW-W.
Sagaporack, Am. S. S.	Copenhagen	Baltimore	56 42 N.	29 10 W.	13	2p, 15	16	28.77	WSW	W, 9	WSW	W, 10	SSW-W.
Black Gull, Am. S. S.	Antwerp	New York	48 22 N.	29 32 W.	16	2p, 16	19	29.12	W	W	WNW	WNW, 10	SW-WNW.
Sagaporack, Am. S. S.	Copenhagen	Baltimore	53 53 N.	38 20 W.	17	Noon, 17	18	29.13	WNW	WNW, 7	W	WNW, 10	W-WNW.
Belgian Gulf, Belg. M. S.	Port Arthur	Antwerp	49 30 N.	11 00 W.	18	4a, 18	18	29.01	WSW	WSW, 9	W	W, 10	WSW-W.
Europa, Ger. S. S.	Cherbourg	New York	46 27 N.	37 38 W.	18	9a, 19	19	29.43	WNW	W	WNW	W, 11	SW-W.
Henri Jaspas, Belg. S. S.	Antwerp	do	50 25 N.	31 00 W.	18	7p, 19	22	28.66	NW	NW, 9	W	NW, 10	S-W-N.
Fort Royal, Fr. M. S.	Guadeloupe	Rouen	44 56 N.	16 58 W.	19	6a, 20	20	29.06	WSW	SW, 10	W	WSW, 12	SW-W.
American Shipper, Am. S. S.	Plymouth	New York	54 32 N.	15 40 W.	19	4p, 20	21	28.16	SW	SW, 9	WSW	SW, 10	SSW-WSW.
Sagaporack, Am. S. S.	Copenhagen	Baltimore	50 50 N.	42 25 W.	19	8p, 20	22	28.92	NNW	W, 7	SSW	NW, 11	E-N-NW.
Beemsterdijk, Du. S. S.	Rotterdam	New York	50 10 N.	27 34 W.	23	4a, 23	24	28.49	NE	NNE, 9	NW	NNE, 9	W-NNW.
American Shipper, Am. S. S.	Plymouth	do	51 50 N.	30 41 W.	22	5a, 23	25	28.86	WNW	NNW, 5	WNW	WNW, 11	W-NNW.
Silvercedar, Br. M. S.	Gibraltar	Halifax	38 48 N.	55 46 W.	23	1p, 23	23	29.77	WSW	W, 9	WNW	W, 9	WSW-WNW.
Yaka, Am. S. S.	Mobile	Havre	49 09 N.	18 30 W.	22	4p, 23	24	28.02	WNW	S, 11	SW	S, 11	SSE-SSW.
West Cobalt, Am. S. S.	Houston	do	48 23 N.	9 26 W.	23	3a, 24	23	28.75	S	SSW, 5	S	SE, 10	S-W.
Columbus, Ger. S. S.	Bremerhaven	New York	49 44 N.	17 20 W.	23	3a, 24	25	28.18	S	WSW, 11	N	W, 12	None.
Ariadne, Du. S. S.	Puerto Barrios	Amsterdam	43 40 N.	24 30 W.	21	10a, 25	26	28.98	SW	NW, 9	NW	NW, 11	None.
Sunetta, Du. M. S.	Curacao	Hamburg	43 30 N.	24 40 W.	21	Noon, 25	25	29.14	NW	WNW, 8	WNW	WNW, 11	None.
Breda, Du. S. S.	do	Liverpool	44 40 N.	26 03 W.	24	5p, 26	27	28.52	NW	N, 9	NNW	WNW, 12	S-NW-N.
Colombia, Du. M. S.	Dover	Barbados	39 30 N.	20 30 W.	26	Mdt, 26	27	28.75	WNW	WNW, 12	NW	WNW, 12	S-WNW.
Solana, Am. S. S.	Houston	New York	34 30 N.	75 51 W.	27	8a, 29	31	29.87	NE	NW, 10	E	NW, 10	S-NW.
Katendrecht, Du. M. S.	do	Flushing	40 26 N.	37 52 W.	27	5a, 30	30	29.44	WNW	NW, 9	NNW	NW, 11	None.
Cuba, Fr. S. S.	Southampton	Guadeloupe	31 00 N.	39 15 W.	31	11p, 31	31	29.47	W	SW, 10	NW	SW, 11	SSW-WNW.
NORTH PACIFIC OCEAN													
Hiye Maru, Jap. M. S.	Yokohama	Vancouver	47 30 N.	167 46 E.	1	4p, 3	1	28.93	S		W	W, 8	W-WSW.
Amagisan Maru, Jap. M. S.	do	Los Angeles	41 05 N.	166 02 E.	1	3p, 2	2	29.13	S	S, 10	SW	S, 10	S-SW.
Washington, Am. S. S.	Vladivostok	San Francisco	42 30 N.	178 00 E.	2	4p, 2	2	29.43	SSE	NNW, 4	S	SE, 11	SE-W-NNW.
Fernlane, Nor. M. S.	Los Angeles	Yokohama	33 06 N.	163 45 E.	2	Mdt, 2	3	29.73	S	SW, 9	WNW	SW, 9	S-WNW.
Tai Ping, Nor. M. S.	Yokohama	Los Angeles	36 54 N.	147 48 E.	2	10p, 1	3	29.67	W	W, 5	WNW	WNW, 9	None.
Golden Sun, Am. S. S.	do	San Francisco	43 18 N.	161 18 W.	3	1p, 3	3	29.94	SE	SE, 8	SE	SE, 8	None.
Empress of Asia, Br. S. S.	do	Victoria	48 18 N.	176 12 E.	2	Mdt, 4	3	29.16	WNW	WSW, 7	WNW	WNW, 10	W-SSW.
Heian Maru, Jap. M. S.	Vancouver	Yokohama	49 22 N.	169 57 E.	3	10a, 4	4	29.04	SE	W, 7	WSW	ESE, 9	SW-W.
Koyo Maru, Jap. S. S.	Yokohama	Port San Luis	38 19 N.	172 40 W.	5	2p, 5	6	29.63	NNE	NE, 7	NW	NW, 8	ENE-N.
Meigs, U. S. A. T.	Manila	San Francisco	34 41 N.	144 11 W.	5	8a, 5	6	30.18	ENE	NE, 6	E	E, 8	None.
Golden Dragon, Am. S. S.	Cebu, P. I.	Portland, Oreg.	45 49 N.	157 55 W.	5	2p, 5	6	30.17	SE	SSE, 8	SSE	SE, 8	None.
Washington, Am. S. S.	Vladivostok	San Francisco	42 30 N.	168 30 W.	5	1a, 6	8	29.63	NE	NNE, 8	E	N, 11	NNE-NNW.
Fernlane, Nor. M. S.	Los Angeles	Yokohama	33 18 N.	146 08 E.	7	Noon, 7	7	29.52	SW	W, 10	NNE	W, 10	W-N.
Silverbelle, Br. M. S.	Dahikan	Los Angeles	34 48 N.	155 00 E.	7	10p, 7	8	29.68	SSW	NW, 7	NW	NW, 9	SSW-NW.
Washington, Am. S. S.	Vladivostok	San Francisco	41 48 N.	158 24 W.	9	1p, 9	9	30.34	E	E, 8	E	E, 8	None.
Fernwood, Nor. M. S.	Los Angeles	Kobe	30 05 N.	141 45 E.	10	8a, 10	10	29.65	S	S, 6	WNW	SW, 8	S-WNW.
Winamac, Br. S. S.	Yokohama	Los Angeles	37 36 N.	152 42 E.	10	10p, 10	11	29.09	SE	S, 8	NW	W, 10	SE-WSW.
Steel Voyager, Am. S. S.	Mahukona	Balboa	20 30 N.	145 54 W.	12	2p, 11	13	29.86	ENE	E, 5	NE	NE, 8	None.
do	do	do	19 42 N.	134 00 W.	14	3p, 15	17	29.90	NE	E, 6	ENE	ENE, 8	None.
Silverbelle, Br. M. S.	Dahikan	Los Angeles	35 15 N.	124 49 W.	20	6p, 20	21	29.96	NNW	N, 7	N	NNW, 8	SE-WSW.
Athelcrown, Br. M. S.	Osaka	San Francisco	39 07 N.	175 34 E.	29	8a, 29	29	29.11	WSW	SE, 5	W	WSW, 9	SE-N.
Hokuroku Maru, Jap. M. S.	Yokohama	Los Angeles	37 47 N.	146 14 E.	29	Mdt, 29	31	29.51	E	SE, 10	ENE	N, 11	SE-N.
do	do	do	43 00 N.	160 50 E.	31	8a, 1	31	29.44	SE	SE, 11	W	W, 11	SE-W.

1 Position approximate.

2 Barometer uncorrected.

3 February.

## NORTH PACIFIC OCEAN, JANUARY 1937

By WILLIS E. HURD

**Atmospheric pressure.**—The pressure distribution over the entire northeastern part of the North Pacific for January 1937 was remarkably abnormal. The anticyclone over eastern waters was highly developed and persisted throughout the month, with average center, about 30.50 inches, near 45° N., 145°-150° W. The high covered the eastern Aleutians and southern Alaskan

waters, with few intermissions, with the consequence that the average pressures from St. Paul and Dutch Harbor to Juneau were from a third to two-thirds inch above the normal. The most remarkable departure of pressure from normal over the northern ocean was +0.65 inch at Kodiak, where the average barometric pressure for the month was 30.24. At Dutch Harbor the average pressure of 30.15, was the highest of record since 1916.

The Aleutian Low this month lay between the western Aleutians and the eastern Kuril Islands. In this region

the lowest reported ship reading was 28.93 (uncorrected), made on the Japanese motorship *Hiye Maru*, January 1, in 47°30' N., 167°46' E.

On southern waters of the ocean, departures of pressure from the normal were small, but generally negative, Midway Island showing the greatest difference from normal, -0.08 inch.

A feature of unusual interest is the pronounced reversal from normal pressure conditions, as affecting a winter month, between Midway Island, in the usual January high pressure belt, and Dutch Harbor, in or near the position of the usually strongly entrenched Aleutian Low. The pressure at Dutch Harbor was 0.20 inch higher than that at Midway Island, which is extraordinarily anomalous for January.

TABLE 1.—Averages, departures, and extremes of atmospheric pressure at sea level, North Pacific Ocean, January 1937, at selected stations

Stations	Average pressure	Departure from normal	Highest	Date	Lowest	Date
	Inches	Inch	Inches		Inches	
Point Barrow.....	29.96	-0.12	30.86	31	29.06	1
Dutch Harbor.....	30.15	+ .57	30.84	29	29.50	1
St. Paul.....	30.02	+ .39	30.84	29	29.28	20
Kodiak.....	30.24	+ .65	30.70	29	29.68	2
Juneau.....	30.22	+ .34	30.83	4	29.57	24
Tatoosh Island.....	30.04	+ .06	30.54	6	29.44	13
San Francisco.....	30.08	- .03	30.40	2	29.71	5
Mazatlan.....	29.92	- .03	30.02	25	29.84	13, 21, 22
Honolulu.....	29.94	- .06	30.08	15	29.70	30
Midway Island.....	29.95	- .08	30.14	6	29.64	18
Guam.....	29.88	- .02	29.94	{ 26, 27, 29, 30 }	29.77	1, 9
Manila.....	29.87	- .02	29.94	25	29.74	2, 3
Hong Kong.....	30.05	- .06	30.28	11	29.84	31
Naha.....						
Chichibima <sup>1</sup> .....						
Urakawa.....	29.99	+ .06	30.30	31	29.53	5

<sup>1</sup> Missing.

NOTE.—Data based on 1 daily observation only, except those for Juneau, Tatoosh Island, San Francisco, and Honolulu, which are based on 2 observations. Departures are computed from best available normals related to time of observation.

**Cyclones and gales.**—The eastern third of the ocean was practically free of cyclonic storms during January. Even as far north as Kodiak the lowest pressure, which occurred on the 2d, was 29.68, thus indicating weak cyclonic activity in northeastern waters. From 160° west longitude eastward to the American coast few ships encountered gales, and such as were met did not exceed eight in force. These were reported on 5 days: On the 6th, scattered over middle and higher latitudes; on the 9th near 42° N., 158½° W.; on the 20th, about 100 miles southwest of San Francisco; and on the 12th and 16th as intensified trades experienced by the steamer *Steel Voyager* along the twentieth parallel far to the eastward of the Hawaiian Islands.

From midocean westward cyclonic activity, while more vigorous than to the eastward, was less than is normal for January. On 4 days, however, gales of force 11, accompanied by only moderately low pressures, were experienced in scattered localities: On the 2d by the American steamer *Washington*, in 42½° N., 178° E.; on the 6th by the same steamer, in 42½° N., 168° W.; and on the 30th and 31st by the Japanese motorship *Hokuroku Maru* 2 and 3 days out from Yokohama on a voyage toward Los Angeles. This last-named ship, it may be added, encountered a force-10 gale on the 29th. The last 3 days of January, for the locality east of Honshu, provided the stormiest weather for any part of the ocean during the entire month. With the exception of the locally high winds of these dates, and an isolated gale of force 9 near 39° N., 175½° E., on the 29th, the latter half of the month was practically

galeless over all parts of the ocean. The period of most frequent and widespread, and for the greater part moderate, storminess was that of the 1st to 7th, mostly confined to the western half of the sailing routes.

No tropical depressions of consequence were reported.

**Fog.**—Scattered fog was observed on 10 days within the region 35° to 45° N., 180° to 140° W., and on only 1 day outside it.

## TYPHOON AND DEPRESSIONS OVER THE FAR EAST, DECEMBER 1936

REV. BERNARD F. DOUCETTE, S. J.

[Weather Bureau, Manila, P. I.]

One typhoon and two depressions were reported this month. Of these, the typhoon was by far the most important disturbance; the depressions were mild and apparently of little importance.

**Typhoon, November 28 to December 5.**—From November 28 to December 1 a low-pressure area over the western Caroline Islands developed into a depression which moved west-northwest and then west. On December 1 it was about 400 miles east of San Bernardino Strait and, as it moved in a westerly direction toward the Philippines, it intensified into a typhoon. Its movement was quite rapid, so much so that evening observations (Dec. 1) from stations around San Bernardino Strait indicated that the locality was in danger. On December 2, 6 a. m., the center was about 60 miles east by south of Virac, Cataduanes Island, and moving west. During the day it passed close to and north of Legaspi, Albay Province. It continued this westerly course to Bondoc Peninsula, where it began to incline west-northwest, thus threatening the city of Manila. It proceeded along this course into the China Sea; the late afternoon and night hours of December 2 were anxious ones in Manila. The center passed close to and south of Manila about 7 a. m., December 3, fortunately very much weaker. The next day (Dec. 4) found it in the China Sea, still moving west-northwest, very weak, and on December 5 no traces of the storm could be found.

The following barometric minima were reported along the course of the typhoon: Virac, Cataduanes Island, on December 2, 8:40 a. m., had 738.00 mm (29.055 inches), with east winds of force 10. Legaspi, Albay Province, recorded 738.45 mm (29.073 inches), with southwest winds of force 9 at 10:45 a. m. Naga, Camarines Sur, experienced a relative calm, 2 to 3:15 p. m. of the same day. Afterward south winds, force 10, blew over the city. The absolute minimum occurred at 2 p. m., a value of 729.81 mm (28.665 inches) with north-northeast winds, force 10, which ceased at that moment. Atimonan, Tayabas Province, was affected after the typhoon inclined to the west-northwest. At 11 p. m., December 2, a relative calm was experienced, which lasted until 1 a. m., December 3. There was no rain, it was reported; however, no stars were visible. Southeast winds, forces 2 and 3, were blowing during this period. The absolute minimum was recorded at 10:15 p. m., 45 minutes before the calm area reached the city. The value observed was 742.07 mm (29.240 inches) and the winds were northeast and force 7 at the time. At Manila, 5:55 a. m., the absolute minimum was recorded, namely, 748.30 mm (29.461 inches), while northwest winds, force 6, were blowing. Throughout the early morning hours northwesterly winds prevailed, forces 5 and 6; the maximum velocity observed was 38 m. p. h. (The above pressure values have been corrected for gravity.)